

3. On information and belief, Sony Mobile Communications AB is a wholly-owned subsidiary of Sony Corporation and is incorporated under the laws of Sweden with its principal place of business at Nya Vattentorget SE-221, 88 Lund, Sweden.

4. On information and belief, Sony Mobile Communications (USA) Inc. wholly-owned subsidiary of Sony Mobile Communications AB and is incorporated under the laws of the State of Delaware with its principal place of business located at 2207 Bridgepointe Pkwy, San Mateo, CA 94404. Sony Mobile Communications (USA) Inc. may be served with process through its registered agent, Capitol Services, Inc., 1675 South State Street Suite B, Dover, DE 19901.

JURISDICTION AND VENUE

5. This action arises under the patent laws of the United States, namely 35 U.S.C. §§ 271, 281, and 284-285, among others.

6. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

7. Venue is proper in this judicial district as to Sony Corporation and Sony Mobile Communications AB because they are foreign entities that may be sued in any judicial district under 28 U.S.C. § 1391(c).

8. Venue is proper in this judicial district as to Sony Mobile Communications (USA) Inc. under 28 U.S.C. § 1400(b) because it was formed under the laws of the State of Delaware and, therefore, resides in this District.

9. Sony is subject to personal jurisdiction pursuant to due process due at least to its substantial business in this State, including: (A) at least part of its infringing activities alleged herein; and (B) regularly doing or soliciting business, engaging in other persistent conduct, and/or deriving substantial revenue from goods sold and services provided to Delaware residents. Sony has conducted and regularly conducts business within the United States and this District. Sony has

purposefully availed itself of the privileges of conducting business in the United States, and more specifically in Delaware and this District. Sony has sought protection and benefit from the laws of the State of Delaware by placing infringing products into the stream of commerce through an established distribution channel with the awareness and/or intent that they will be purchased by consumers in this District.

10. On information and belief, Sony has significant ties to, and presence in, this District, making venue in this judicial district both proper and convenient for this action.

COUNT I
(INFRINGEMENT OF U.S. PATENT NO. 7,627,044)

11. Super Interconnect incorporates paragraphs 1 through 10 herein by reference.

12. Super Interconnect is the assignee of the '044 patent, entitled "Clock-Edge Modulated Serial Link with DC-Balance Control," with ownership of all substantial rights in the '044 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringement. A true and correct copy of the '044 patent is attached as Exhibit A.

13. The '044 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '044 patent issued from U.S. Patent Application No. 11/264,303.

14. To the extent any marking or notice was required by 35 U.S.C. § 287, Super Interconnect and all predecessors-in-interest to the '044 patent have complied with the requirements of that statute by providing actual or constructive notice to Sony of its alleged infringement.

15. Sony has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '044 patent in this judicial district and elsewhere in the United States, including at least claims 1, 2, 8, 9, 10, 11, 12, 13, 14, 15 and 19, by, among other

things, making, having made, using, offering for sale, selling, and/or importing electronic devices with Universal Flash Storage (UFS) that incorporate the fundamental technologies covered by the '044 patent. These products are referred to as the "'044 Accused Products." Examples of the '044 Accused Products include, but are not limited to, the Sony Xperia XZ smartphone.



16. For example, the Sony Xperia XZ directly infringes claim 1 of the '044 patent, as shown in the below paragraphs.

17. An example of the Sony Xperia XZ is shown in the image below.



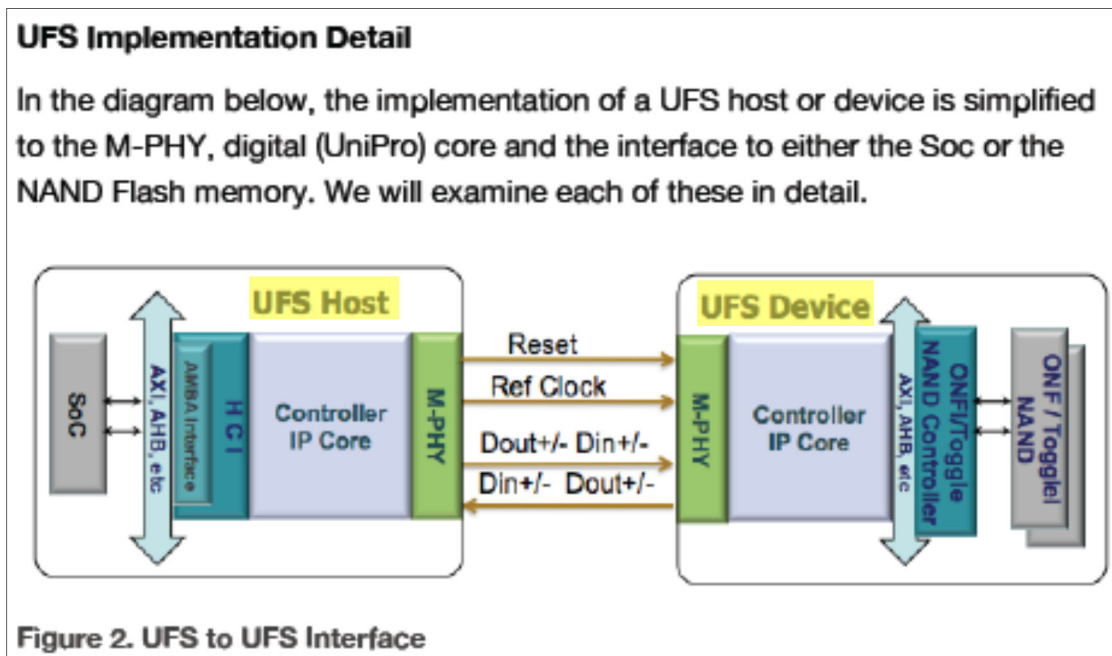
18. Sony incorporates UFS storage in the Xperia XZ, as shown in the image below.

SPECIFICATIONS

	19 MP Motion Eye™ camera with Super slow motion More about camera	SIM CAPABILITY Single SIM, Dual SIM, Nano SIM
	5.5" 4K HDR display More about display	MEMORY AND STORAGE 4GB RAM, 64GB (Dual SIM) UFS internal memory [®]
		WEIGHT 6.73 oz

<https://www.sonymobile.com/us/products/phones/xperia-xz-premium/>

19. The images below show that the Sony Xperia XZ's UFS storage uses the MIPI M-PHY protocol for physical layer communication between the UFS host and the UFS device.



Arasan Chip Systems Inc. White Paper, “Universal Flash Storage: Mobilize Your Data” at 6 (Oct. 2012).

M-PHY I/O

MIPI defines two types of M-PHY, type 1 and type 2. The UFS specification calls out type 1. M-PHY Type 1 uses NRZ signaling for HS and PWM signaling for LS, while type 2 uses NRZ signaling for both HS and LS.

UFS utilizes two speed modes, high-speed and low-speed. Low speed mode In Gear 1 is used upon power up or reset, then a transition occurs to high-speed gears for data transmission. The low speed gears and high-speed gears are listed here for your reference. UFS v1.1 has been ratified and supports HS Gear 2 running approximately @ 3Gbps per lane. The UFS spec also supports up to 4 lanes for higher throughput.

Id.

20. UFS hosts and devices, which are included in the '044 Accused Products, contain signal transmitters. These signal transmitters drive a DC-balanced differential signal for a communications channel. This signal is comprised of a pair of data signals: a positive (true) data signal and a negative (complement) data signal. These transmitters multiplex a pulse-width modulated clock signal, a data signal, and control signals to apply them to the communications channel.

21. The '044 Accused Products thus include each and every limitation of claim 1 of the '044 patent; accordingly, they literally infringe this claim. Sony directly infringes the '044 patent by making, using, offering to sell, selling, and/or importing the '044 Accused Products. Sony is thereby liable for direct infringement.

22. During discovery and development of its infringement contentions, Plaintiff may provide additional theories under which Sony infringes the '044 patent besides the example provided above, including for the same product and using the same components identified above, and nothing in the example above is meant to limit the infringement allegations of Plaintiff or limit the interpretations of the claims or their terms.

23. At a minimum, Sony has known that the '044 Accused Products infringe the '044 patent at least as early as the service date of this Original Complaint.

24. Upon information and belief, since at least the above-mentioned date when Sony was on notice of its infringement, Sony has actively induced, under U.S.C. § 271(b), third-party manufacturers, distributors, importers and/or consumers that purchase or sell the '044 Accused Products that include all of the limitations of one or more claims of the '044 patent to directly infringe one or more claims of the '044 patent by making, having made, using, offering for sale, selling, and/or importing the '044 Accused Products. Since at least the notice provided on the above-mentioned date, Sony does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '044 patent. Upon information and belief, Sony intends to cause, and has taken affirmative steps to induce, infringement by these third-party manufacturers, distributors, importers, and/or consumers by, inter alia, creating advertisements that promote the infringing use of the '044 Accused Products, creating established distribution channels for the '044 Accused Products into and within the United States, manufacturing the '044 Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States. For example, Sony publishes an online user guide for the Xperia XZ on its own website at the following web address: <https://support.sonymobile.com/us/xperiazx/userguide/>.

25. Super Interconnect has been damaged as a result of Sony's infringing conduct described in this Count. Sony is, thus, liable to Super Interconnect in an amount that adequately compensates Super Interconnect for Sony's infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT II
(INFRINGEMENT OF U.S. PATENT NO. 6,463,092)

26. Super Interconnect incorporates paragraphs 1 through 25 herein by reference.

27. Super Interconnect is the assignee of the '092 patent, entitled "System and Method for Sending and Receiving Data Signals Over A Clock Signal Line," with ownership of all substantial rights in the '092 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringement. A true and correct copy of the '092 patent is attached as Exhibit B.

28. The '092 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '092 patent issued from U.S. Patent Application No. 09/393,235.

29. To the extent any marking or notice was required by 35 U.S.C. § 287, Super Interconnect and all predecessors-in-interest to the '092 patent have complied with the requirements of that statute by providing actual or constructive notice to Sony of its alleged infringement.

30. Sony has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '092 patent in this judicial district and elsewhere in the United States, including at least claims 1, 2, 5, 10, and 11 by, among other things, making, having made, using, offering for sale, selling, and/or importing electronic devices with Universal Flash Storage (UFS) that incorporate the fundamental technologies covered by the '092 patent. These products are referred to as the "'092 Accused Products." Examples of the '092 Accused Products include, but are not limited to, the Sony Xperia XZ smartphone.

31. For example, the Sony Xperia XZ directly infringes claim 1 of the '092 patent, as shown in the below paragraphs.

32. An example of the Sony Xperia XZ is shown in the image below.



33. Sony incorporates UFS storage in the Xperia XZ, as shown in the image below.

SPECIFICATIONS

	19 MP Motion Eye™ camera with Super slow motion More about camera	SIM CAPABILITY Single SIM, Dual SIM, Nano SIM
	5.5" 4K HDR display More about display	MEMORY AND STORAGE 4GB RAM, 64GB (Dual SIM) UFS internal memory ²
		WEIGHT 6.73 oz

<https://www.sonymobile.com/us/products/phones/xperia-xz-premium/>

34. The images below show that the Sony Xperia XZ's UFS storage uses the MIPI M-PHY protocol for physical layer communication between the UFS host and the UFS device.

UFS Implementation Detail

In the diagram below, the implementation of a UFS host or device is simplified to the M-PHY, digital (UniPro) core and the interface to either the Soc or the NAND Flash memory. We will examine each of these in detail.

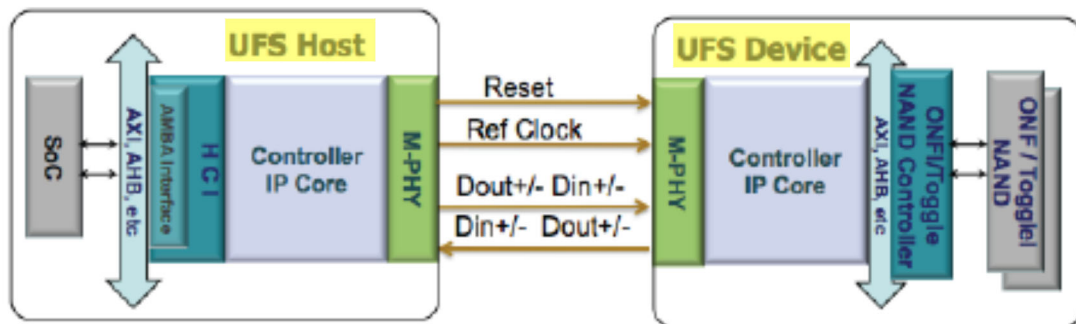


Figure 2. UFS to UFS Interface

Arasan Chip Systems Inc. White Paper, “Universal Flash Storage: Mobilize Your Data” at 6 (Oct. 2012).

M-PHY I/O

MIPI defines two types of M-PHY, type 1 and type 2. The UFS specification calls out type 1. M-PHY Type 1 uses NRZ signaling for HS and PWM signaling for LS, while type 2 uses NRZ signaling for both HS and LS.

UFS utilizes two speed modes, high-speed and low-speed. Low speed mode In Gear 1 is used upon power up or reset, then a transition occurs to high-speed gears for data transmission. The low speed gears and high-speed gears are listed here for your reference. UFS v1.1 has been ratified and supports HS Gear 2 running approximately @ 3Gbps per lane. The UFS spec also supports up to 4 lanes for higher throughput.

Id.

35. UFS hosts and devices, which are included in the '092 Accused Products, multiplex clock and data signals for transmission over a single communications channel. This clock signal is modulated based on the data to be transmitted before being combined with the output data stream.

36. The '092 Accused Products thus each and every limitation of claim 1 of the '092 patent; accordingly, they literally infringe this claim. Sony directly infringes the '092 patent by

making, using, offering to sell, selling, and/or importing the '092 Accused Products. Sony is thereby liable for direct infringement.

37. During discovery and development of its infringement contentions, Plaintiff may provide additional theories under which Sony infringes the '092 patent besides the example provided above, including for the same product and using the same components identified above, and nothing in the example above is meant to limit the infringement allegations of Plaintiff or limit the interpretations of the claims or their terms.

38. At a minimum, Sony has known that the '092 Accused Products infringe the '092 patent at least as early as the service date of this Original Complaint.

39. Upon information and belief, since at least the above-mentioned date when Sony was on notice of its infringement, Sony has actively induced, under U.S.C. § 271(b), third-party manufacturers, distributors, importers and/or consumers that purchase or sell the '092 Accused Products that include all of the limitations of one or more claims of the '092 patent to directly infringe one or more claims of the '092 patent by making, having made, using, offering for sale, selling, and/or importing the '092 Accused Products. Since at least the notice provided on the above-mentioned date, Sony does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '092 patent. Upon information and belief, Sony intends to cause, and has taken affirmative steps to induce, infringement by these third-party manufacturers, distributors, importers, and/or consumers by, inter alia, creating advertisements that promote the infringing use of the '092 Accused Products, creating established distribution channels for the '092 Accused Products into and within the United States, manufacturing the '092 Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, and/or providing

technical support, replacement parts, or services for these products to these purchasers in the United States. For example, Sony publishes an online user guide for the Xperia XZ on its own website at the following web address: <https://support.sonymobile.com/us/xperiazx/userguide/>.

40. Super Interconnect has been damaged as a result of Sony's infringing conduct described in this Count. Sony is, thus, liable to Super Interconnect in an amount that adequately compensates Super Interconnect for Sony's infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT III
(INFRINGEMENT OF U.S. PATENT NO. 7,158,593)

41. Super Interconnect incorporates paragraphs 1 through 40 herein by reference.

42. Super Interconnect is the assignee of the '593 patent, entitled "Combining a Clock Signal and a Data Signal," with ownership of all substantial rights in the '593 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringement. A true and correct copy of the '593 patent is attached as Exhibit C.

43. The '593 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '593 patent issued from U.S. Patent Application No. 10/099,533.

44. To the extent any marking or notice was required by 35 U.S.C. § 287, Super Interconnect and all predecessors-in-interest to the '593 patent have complied with the requirements of that statute by providing actual or constructive notice to Sony of its alleged infringement.

45. Sony has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '593 patent in this judicial district and elsewhere in the United States, including at least claims 34 and 35, by, among other things, making, having made,

using, offering for sale, selling, and/or importing electronic devices with Universal Flash Storage (UFS) that incorporate the fundamental technologies covered by the '593 patent. These products are referred to as the "'593 Accused Products." Examples of the '593 Accused Products include, but are not limited to, the Sony Xperia XZ smartphone.



46. The Sony Xperia XZ directly infringes claim 34 of the '593 patent, as shown in the below paragraphs.

47. An example of the Sony Xperia XZ is shown in the image below.



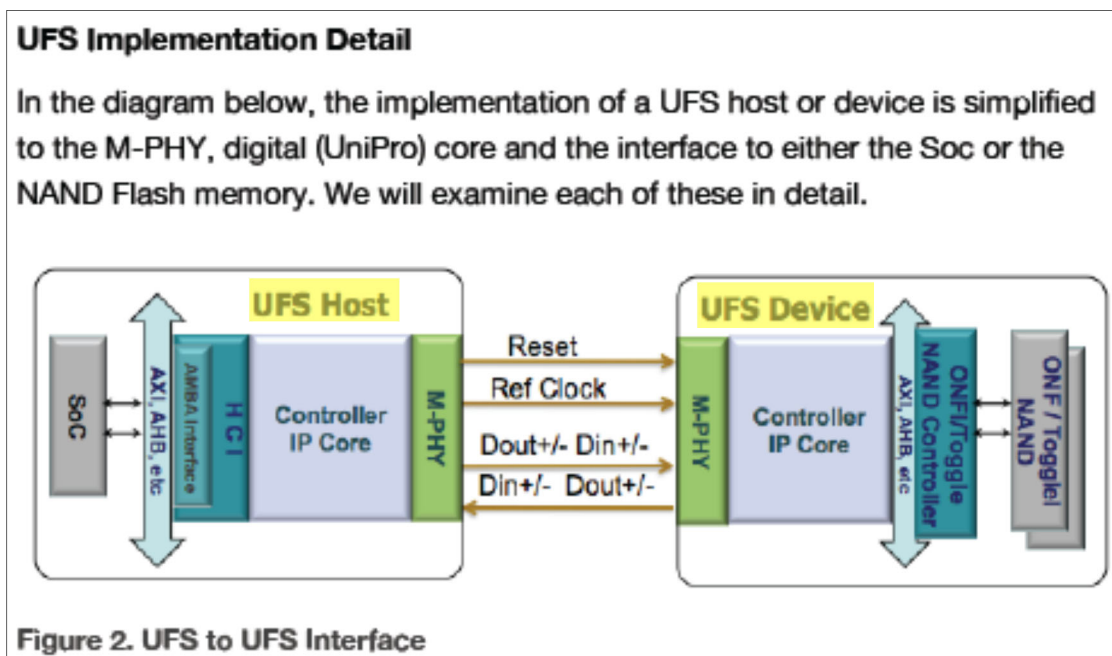
48. Sony incorporates UFS storage in the Xperia XZ, as shown in the image below.

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<https://www.sonymobile.com/us/products/phones/xperia-xz-premium/>

49. The images below show that the Sony Xperia XZ's UFS storage uses the MIPI M-PHY protocol for physical layer communication between the UFS host and the UFS device.



Arasan Chip Systems Inc. White Paper, “Universal Flash Storage: Mobilize Your Data” at 6 (Oct. 2012).

M-PHY I/O

MIPI defines two types of M-PHY, type 1 and type 2. The UFS specification calls out type 1. M-PHY Type 1 uses NRZ signaling for HS and PWM signaling for LS, while type 2 uses NRZ signaling for both HS and LS.

UFS utilizes two speed modes, high-speed and low-speed. Low speed mode In Gear 1 is used upon power up or reset, then a transition occurs to high-speed gears for data transmission. The low speed gears and high-speed gears are listed here for your reference. UFS v1.1 has been ratified and supports HS Gear 2 running approximately @ 3Gbps per lane. The UFS spec also supports up to 4 lanes for higher throughput.

Id.

50. UFS hosts and devices, which are included in the '593 Accused Products, contain signal transmitters. These transmitters encode the data to be transmitted and further multiplex a pulse-width modulated clock signal, an encoded data signal, and control signals to apply them to the communications channel. This encoding scheme shifts an energy spectrum of the combined clock and encoded data signal away from an effective loop bandwidth of a clock recovery block.

51. The '593 Accused Products thus perform each and every limitation of claim 34 of the '593 patent; accordingly, they literally infringe this claim. Sony directly infringes the '593 patent by making, using, offering to sell, selling, and/or importing the '593 Accused Products. Sony is thereby liable for direct infringement.

52. During discovery and development of its infringement contentions, Plaintiff may provide additional theories under which Sony infringes the '593 patent besides the example provided above, including for the same product and using the same components identified above, and nothing in the example above is meant to limit the infringement allegations of Plaintiff or limit the interpretations of the claims or their terms.

53. At a minimum, Sony has known that the '593 Accused Products infringe the '593 patent at least as early as the service date of this Original Complaint.

54. Upon information and belief, since at least the above-mentioned date when Sony was on notice of its infringement, Sony has actively induced, under U.S.C. § 271(b), third-party manufacturers, distributors, importers and/or consumers that purchase or sell the '593 Accused Products that include all of the limitations of one or more claims of the '593 patent to directly infringe one or more claims of the '593 patent by making, having made, using, offering for sale, selling, and/or importing the '593 Accused Products. Since at least the notice provided on the above-mentioned date, Sony does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '593 patent. Upon information and belief, Sony intends to cause, and has taken affirmative steps to induce, infringement by these third-party manufacturers, distributors, importers, and/or consumers by, *inter alia*, creating advertisements that promote the infringing use of the '593 Accused Products, creating established distribution channels for the '593 Accused Products into and within the United States, manufacturing the '593 Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States. For example, Sony publishes an online user guide for the Xperia XZ on its own website at the following web address: <https://support.sonymobile.com/us/xperiazx/userguide/>.

55. Super Interconnect has been damaged as a result of Sony's infringing conduct described in this Count. Sony is, thus, liable to Super Interconnect in an amount that adequately compensates Super Interconnect for Sony's infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

JURY DEMAND

Super Interconnect hereby requests a trial by jury pursuant to Rule 38 of the Federal

Rules of Civil Procedure.

PRAYER FOR RELIEF

Super Interconnect requests that the Court find in its favor and against Sony, and that the Court grant Sony the following relief:

- a. Judgment that one or more claims of the '044, '092, and '593 patents have been infringed, either literally and/or under the doctrine of equivalents, by Sony and/or by others whose infringement has been induced by Sony;
- b. Judgment that Sony account for and pay to Super Interconnect all damages to and costs incurred by Super Interconnect because of Sony's infringing activities and other conduct complained of herein;
- c. Judgment that Sony account for and pay to Super Interconnect a reasonable, ongoing, post-judgment royalty because of Sony's infringing activities and other conduct complained of herein;
- d. Judgment that Sony's conduct warrants that the Court award treble damages pursuant to 35 U.S.C. § 284;
- e. Judgement that Super Interconnect be granted pre-judgment and post-judgment interest on the damages caused by Sony's infringing activities and other conduct complained of herein;
- f. Judgment and an order finding this to be an exceptional case and requiring Sony to pay the costs of this action (including all disbursements) and attorneys' fees as provided by 35 U.S.C. § 285; and
- g. That Super Interconnect be granted such other and further relief as the Court may deem just and proper under the circumstances.

Dated: November 2, 2018

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Respectfully submitted,

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